



# CHEMISTRY

## BOOKS - ARIHANT PUBLICATION

### POLYMERS

**Questions For Practice Multiple Choice Type Questions**

1. Which one of the following is a natural polymer?

A. Protein

B. Teflon

C. Terylene

D. Nylon

**Answer: A**



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2. Natural rubber is the polymer of—

A. acrylonitrile

B. isoprene

C. tetrafluoroethylene

D. None of these

**Answer: B**



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**3. Which of the following is a condensation polymer?**

A. Buna-S

B. PVC

C. Terylene

D. Teflon

**Answer: C**



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4. Which of the following is not a condensation polymer?

A. Bakelite

B. Nylon

C. Dacron

D. Teflon

**Answer: D**



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**5. Terylene is a**

A. Polyamide

B. Polyester

C. Polyacrylate

D. Polyolefin

**Answer: B**



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**6. Dacron is prepared by**

A. addition reaction

B. elimination reaction

C. condensation polymerisation

D. substitution reaction

**Answer: C**



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7. which One of the following is a cross-linked polymer

A. bakelite

B. glycogen

C. nylon

D. polythene

**Answer: A**



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## Questions For Practice Very Short Answer Type Questions

1. Define the term polymerisation.



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2. Nylon 6,6 is prepared by the condensation of and ....



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3. Classify the following as addition and condensation polymers. Terylene, bakelite, polyvinyl chloride, polythene



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4. Is  $-(NH - CHR - CO)_n-$ , a

homopolymer or a copolymer?



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5. Which factor imparts crystalline nature to a polymer like nylon?



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6. Which of the following are addition polymers: Terylene, Teflon, Neoprene?



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7. Whether terylene is an addition or condensation polymer?



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**8.** Why does cis-polyisoprene possess elastic property?



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**9.** Based on molecular forces, what type of polymer is neoprene?



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**10.** Which type of molecules act as initiators in cationic addition polymerisation?



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**11.** What is the role of sulphur in vulcanisation of rubber ?



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**12.** What is neoprene ? Give its one use.



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**13.** What are the monomers used for preparing buna-S?



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**14.** Write the name and structure of one of the common initiators used in free radical addition polymerisation.



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**15.** What are the monomeric repeating units of nylon-6 and nylon-6,6?



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**16.** Condensation of ethylene glycol with terephthalic acid produces a compound called

.....



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17. Condensation of ethylene glycol with terephthalic acid produces a compound called

.....



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18. What is the monomer of Teflon ?



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19. From which compound terylene is made?



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20. Name any two polymer.



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21. What is meant by buna-s ?



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22. How bakelite is made ?



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## Questions For Practice Short Answer Type I Questions

1. How do you explain the functionality of a monomer?



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2. What are natural and synthetic polymers?

Give two examples of each type.





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3. Arrange the following polymers in the increasing order of their intermolecular forces.

Nylon-6,6, buna-S, polythene



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4. Arrange the following polymers in the increasing order of their intermolecular forces.

Nylon-6, neoprene, polyvinyl chloride



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5. Define thermosetting and thermoplastic polymers with example.



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6. Define thermosetting and thermoplastic polymers with example.



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7. What is a biodegradable polymer? Give an example of a biodegradable aliphatic polymers.



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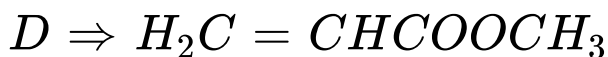
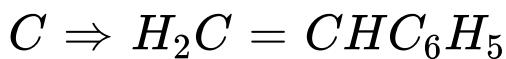
8. Which of the following polymers soften on heating and harden on cooling? What are the polymers with this property collectively called? What are the structural similarities between

such polymers? Bakelite, urea-formaldehyde resin, polythene, polyvinyl, polystyrene.



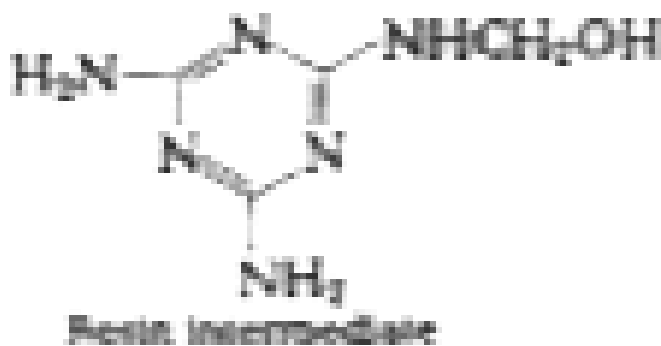
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9. Arrange the following alkenes A  $\rightarrow$  D, towards order of increasing reactivity in cationic polymerisation:



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10. How is the following resin intermediate prepared and which polymer is formed by this monomer unit?



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**11.** Give the name of monomers used in buna-S rubber preparation.



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**12.** Why should the monomer used in addition through free radical pathway, be very pure?



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**13.** What is teflon ? Give its one use.





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**14.** Why nylon - 6, 6 is so called, give the name and formula of its monomer.



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**15.** What are the two compounds badly necessary for the preparation of nylon 6, 6?



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# Questions For Practice Short Answer Type II Questions

1. How are polymers classified on the basis of their structure ?



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2. Distinguish between the terms homopolymer and copolymer. Give one example of each.



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3. How can you differentiate between addition and condensation polymerisation?



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4. Differentiate between rubbers and plastics on the basis of intermolecular forces.



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5. Write the free radical mechanism for the polymerisation of ethene.



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6. Write the names of monomers of the following polymers:



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7. How is dacron obtained from ethylene glycol and terephthalic acid?



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8. How does the presence of double bonds in rubber molecules influence their structure and reactivity?



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**9.** What is the purpose of vulcanisation of rubber?



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**10.** Write the names and structures of the monomers of the following polymers.

Buna-S



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**11.** Write the names and structures of the monomers of the following polymers.

Buna-N



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**12.** Write the names and structures of the monomers of the following polymers.

Dacron



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**13.** Write the names and structures of the monomers of the following polymers.

Neoprene



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**14.** Give an example of polyester used as a synthetic fibre.



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**15.** Name the compounds from which polyester is prepared.



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**16.** What type of polymérisation takes place during the formation of the polyester from these compounds?



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## Questions For Practice Long Answer Type Questions

1. A monomer of a polymer upon ozonolysis gives one mole of methyl glyoxal and two moles of formaldehyde.

Identify the monomer of the polymer.



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2. A monomer of a polymer upon ozonolysis gives one mole of methyl glyoxal and two

moles of formaldehyde.

Give its free radical mode of addition polymerisation.



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3. Describe the four types of copolymers.



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**Odisha Bureau S Textbook Solutions A Multiple Choice Type Questions**

1. Chloroprene is the repeating unit in

A. PVC

B. polythene

C. neoprene

D. polystyrene

**Answer: C**



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2. Orlon is a polymer of

A. vinyl chloride

B. styrene

C. butadiene and adipic acid

D. acrylonitrile

**Answer: D**



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**3. Which of the following is a condensation polymer?**

A. Teflon

B. Bakelite

C. Buna-S

D. Neoprene

**Answer: B**



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**4. Natural rubber is the polymer of—**

A. acrylonitrile

B. isoprene

C. vinyl chloride

D. tetrafluoroethylene

**Answer: B**



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5. Which of the following is not a condensation polymer?

A. Bakelite

B. Nylon

C. Dacron

D. Teflon

**Answer: D**



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**6. Teflon is a type of**

A. condensation polymer

B. synthetic rubber



C. addition polymer

D. None of these

**Answer: C**



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7. Which of the following is synthetic rubber?

A. Buna-S

B. Polyisoprene

C. Dacron

D. None of these

**Answer: A**



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**8. Which is naturally occurring polymer?**

A. Rayon

B. Nylon

C. Protein

D. PVC

**Answer: C**



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9. Which of the following is called a polyamide?

A. Rayon

B. Terylene

C. Nylon

D. Teflon

**Answer: C**



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**10.** A raw material used in making nylon is

A. adipic acid

B. butadiene

C. ethylene

D. methyl methacrylate

**Answer: A**



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11. Teflon is a polymer of

A. monofluoroethene

B. difluoroethene

C. trifluoroethene

D. tetrafluoroethene

**Answer: D**



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12. Which of the following is used to make non-stick

A. PVC

B. PET

C. Teflon

D. Nylon

**Answer: C**



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**13.** Nylon-6,6 is obtained from

A. propene and adipic acid

B. phenol and formaldehyde

C. hexamethylene diamine and adipic acid

D. adipic acid and phthalic acid

**Answer: C**



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14. Nylon-6 is made from

A. 1,3-butadiene

B. chloroprene

C. adipic acid

D. caprolactam

**Answer: D**



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15. Baby feeding bottles are generally made up of

A. Polystyrene

B. Polyurethane

C. Polyamide

D. Polyester

**Answer: A**



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16. Teflon, styrene and neoprene are all

A. monomers

B. homopolymers

C. copolymers

D. condensation polymers

**Answer: B**



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1. Bakelite is formed by the chemical combination of phenol and \_\_\_\_\_.



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2. Name the linkage (bond) prevailing in the proteins.



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3. Write any two uses of neoprene.



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**4. Mention two uses of buna-S.**



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**5. What is buna-N?**



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**6. What is neoprene ? Give its one use.**



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7. Name the monomer used for the preparation of teflon.



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8. What is PHBV?



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9. What is copolymer ?



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10. Name the monomer of nylon-6.



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11. Write short notes on: Thermoplastic and thermosetting polymers



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**12.** Name the monomers used for novolac.



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**13.** What are the monomers required for terylene?



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**14.** Define the term polymerisation.



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## Odisha Bureau S Textbook Solutions C Short Answer Type I Questions

1. What are polymers? Give two examples.



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2. What is teflon ? Give its one use.



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3. What is natural rubber? Why it cannot be used for making foot-ball bladders?



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4. What is terylene ?



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5. What is biodegradable polymer ? Give an example.



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6. What is nylon-6,6? How is it prepared?



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7. What are natural and synthetic polymers?

Give one example of each



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**8.** What do you mean by vulcanisation of rubber?



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**9.** Define copolymerisation and give one example.



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10. What do you mean by free radical polymerisation? Name one initiator used for it.



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## Odisha Bureau S Textbook Solutions D Short Answer Type Ii Questions

1. Write short notes on: Thermoplastic and thermosetting polymers



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2. Homopolymers and copolymers.



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3. Natural rubber and synthetic rubber.



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4. Distinguish between addition polymer and condensation polymer.



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5. What is difference between Nylon-6 and Nylon-6, 6?



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6. Buna-N and buna-s.



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7. Novolac and bakelite.



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## Odisha Bureau S Textbook Solutions E Long Answer Type Questions

1. What are polymers? What are the different methods of their preparation?



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2. How are polymers classified on the basis of their structure ?



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**3.** What are polymers? How are they classified on the basis of synthesis



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**4.** Classify the polymers on the basis of molecular forces.



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5. What are natural rubbers and what are synthetic rubbers? What is vulcanisation? How does it improve the characteristics of rubbers?



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6. Write the free radical mechanism for the polymerisation of ethene.



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## Chapter Practice Multiple Choice Type Questions

1. Which of the following polymer can be remelted time to time without producing any change?

A. Thermosetting polymers

B. Thermoplastic polymers

C. Bakelite

D. Melamine formaldehyde polymer

**Answer: B**



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2. What is the similarity between buna-N and PHBV?

A. Both are copolymers

B. Both are biodegradable

C. Both have one same monomeric unit

D. Peroxide catalyst is used in their preparation

**Answer: A**



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**3. Which of the following is used for making paints and lacquers?**

A. Perlon

B. Acrilan

C. Dacron

D. Glyptal

**Answer: D**



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**Chapter Practice Very Short Answer Type Questions**

1. Which polymer need at least one diene monomer for their preparation?



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2. The chemical names of nylon-6 and chloroprene are ..... and.....



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3. Give the reaction involved in the formation of buna-s.



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4. Which polymer is used in making non-breakable plastic cups and plates ?



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5. Name a polymer which possesses vinylic monomer units.



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**Chapter Practice Short Answer Type I Questions**

1. Distinguish between the terms homopolymer and copolymer. Give one example of each.



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2. Write the name of the polymer which is also known as orlon. Write equation for the preparation of orlon.



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3. Name the polymers used for making contact lenses, wood laminates, non-stick utensils and paints.

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Give the structure of the products A and  $B_n$ .

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5. Why do LDP and HDP differ in their densities?



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6. What is PMMA? How is it useful to mankind?



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**Chapter Practice Short Answer Type II Questions**

1. Define the following with examples:

Semi-synthetic polymers



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2. Define the following with examples:

Network polymers



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3. Define the following with examples:

Fibres



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4. Natural rubber is the polymer of—



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5. What are natural rubbers and what are synthetic rubbers? What is vulcanisation? How

does it improve the characteristics of rubbers?



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6. How is bakelite made and what is its major use ? Why is it called thermo-setting polymer?



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7. Starting with cyclohexane, how will you prepare nylon-6?



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8. Write the structure and uses of the following polymers: Buna-S, PMMA, PVC, nylon-6, nylon-2-nylon-6 and neoprene



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9. What is dacron? How is it prepared? Write its one use.



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10. What is novolac? Write the reactions involved in the formation of novolac.



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## Chapter Practice Long Answer Type Questions

1. What are natural and synthetic polymers?

Give two examples of each type.



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2. Write names of monomers of the following polymers and classify them as addition and condensation polymers.

Bakelite



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3. Write names of monomers of the following polymers and classify them as addition and condensation polymers.

Natural rubber



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